

IN THE CLAIMS:

The status of each claim that has been introduced in the above-referenced application is identified in the ensuing listing of the claims. This listing of the claims replaces all previously submitted claims listings.

1. (Currently amended) A method of modifying a semiconductor die, comprising:  
providing at least one semiconductor die having an active surface; and  
forming on or securing to ~~said~~the active surface at least one stabilizer comprising at least two superimposed, contiguous, mutually adhered layers comprising a dielectric material such that ~~said~~the at least one stabilizer protrudes from ~~said~~the active surface, ~~said~~the at least one stabilizer being configured to space ~~said~~the at least one semiconductor die a substantially fixed distance apart from a higher-level substrate when disposed active surface-down over ~~said~~the higher-level substrate.
2. (Currently amended) The method of claim 1, wherein ~~said~~-forming ~~said~~the at least one stabilizer comprises forming a plurality of stabilizers.
3. (Currently amended) The method of claim 2, wherein ~~said~~-forming ~~said~~the plurality of stabilizers comprises forming at least one stabilizer of ~~said~~the plurality of stabilizers adjacent at least one corner of ~~said~~the active surface.
4. (Currently amended) The method of claim 2, wherein ~~said~~-forming ~~said~~the plurality of stabilizers comprises forming at least two stabilizers adjacent opposite peripheral edges of ~~said~~the active surface.
5. (Currently amended) The method of claim 2, wherein ~~said~~-forming ~~said~~the plurality of stabilizers comprises forming selected ones of ~~said~~the plurality of stabilizers to have a height that defines a substantially consistent die-to-substrate distance.

6. (Currently amended) The method of claim 1, wherein ~~said~~ forming said the at least one stabilizer comprises forming said the at least one stabilizer from photoimageable material.

7. (Canceled)

8. (Currently amended) The method of claim 1, wherein ~~said~~ providing comprises providing at least one semiconductor die having a sealing material on an active surface thereof and wherein ~~said the~~ forming comprises forming said the at least one stabilizer to be securable to said the sealing material.

9. (Currently amended) The method of claim 1, wherein ~~said~~ providing comprises providing a semiconductor wafer including a plurality of semiconductor dice.

10. (Currently amended) The method of claim 1, further comprising adhering said the at least one stabilizer to said the active surface.

11. (Currently amended) The method of claim 1, wherein ~~said~~ forming said the at least one stabilizer comprises applying a layer of insulative material on said the active surface and patterning said the layer.

12. (Currently amended) The method of claim 1, wherein ~~said~~ forming said the at least one stabilizer comprises applying a layer of photoresist material on said the active surface and patterning said the layer.

13. (Currently amended) The method of claim 1, further comprising introducing an encapsulant material between said the at least one semiconductor die and said the substrate.

14. (Currently amended) The method of claim 1, wherein ~~said~~ forming said the at least one stabilizer comprises positioning said the at least one stabilizer on said the active surface so as to avoid contact with conductive traces on a carrier substrate.

15. (Currently amended) The method of claim 1, further comprising disposing at least one conductive structure on at least one bond pad of ~~said~~the at least one semiconductor die.

16. (Currently amended) The method of claim 15, wherein ~~said~~-disposing comprises forming a solder bump on ~~said~~the at least one bond pad.

17. (Currently amended) The method of claim 15, wherein ~~said~~-disposing comprises applying one of a conductive pillar, a conductor filled epoxy pillar, and a structure of z-axis elastomer to ~~said~~the at least one bond pad.

18. (Currently amended) A method of modifying a semiconductor device component, comprising:

providing at least one semiconductor substrate with contact pads on an active surface thereof;  
and

sequentially forming on ~~said~~the active surface at least one stabilizer having a plurality of superimposed, contiguous, mutually adhered layers of photopolymer, ~~said~~the at least one stabilizer being configured to at least partially stabilize an orientation of the semiconductor device component upon being disposed active surface-down over a higher-level substrate.

19. (Currently amended) A method of modifying a semiconductor device component, comprising:

placing at least one semiconductor substrate including at least one semiconductor die having an active surface with contact pads exposed thereon in a horizontal plane;

recognizing a location and orientation of ~~said~~the at least one ~~substrate~~die;

stereolithographically forming on ~~said~~the active surface, between one of ~~said~~the contact pads and a peripheral edge of ~~said~~the at least one substrate, at least one stabilizer comprising at least one layer of an electrically nonconductive semisolid material.

20. (Currently amended) The method of claim 19, further comprising storing data including at least one physical parameter of ~~said~~the at least one substrate in computer memory,

and using the stored data in conjunction with a machine vision system to recognize said the location and orientation of said the at least one substrate and to form said the at least one stabilizer thereon.

21. (Currently amended) The method of claim 20, further including in computer memory at least one parameter of another semiconductor device component to which said the at least one substrate is to be attached.

22. (Currently amended) The method of claim 20, further comprising using stored data, in conjunction with said the machine vision system, to selectively form said the at least one layer of semisolid material stereolithographically on at least one portion of said the active surface of said the at least one substrate.

23. (Currently amended) The method of claim 20, further including securing said the at least one substrate to a carrier prior to placing said the at least one substrate in said the horizontal plane.

24-35 (Canceled)

36. (Currently amended) A method for electrically bonding a semiconductor ~~device component~~die having a surface and conductive structures protruding from said the surface to a substrate having contacts positioned correspondingly to said the conductive structures, said the method comprising:  
stereolithographically forming at least one stabilizer structure comprising a dielectric material on at least one of said the surface and said the substrate for disposal between said the surface and said the substrate;  
inverting and positioning said the semiconductor ~~device component~~die on said the substrate to contact said the conductive structures to corresponding contacts; and  
bonding said the conductive structures to the corresponding contacts.

37. (Currently amended) The method of claim 36, wherein ~~said~~ stereolithographically forming at least one stabilizer structure comprises forming ~~said~~the at least one stabilizer structure to have a height less than a minimum distance ~~said~~the conductive structures protrude from ~~said~~the surface.

38. (Currently amended) The method of claim 36, wherein ~~said~~ stereolithographically forming at least one stabilizer structure comprises forming ~~said~~the at least one stabilizer structure to space ~~said~~the surface from ~~said~~the substrate a distance greater than a minimum distance at least one of ~~said~~the conductive structures protrudes from ~~said~~the surface.

39. (Currently amended) The method of claim 38, wherein ~~said~~ bonding comprises employing ~~said~~the at least one stabilizer structure to lengthen at least one of ~~said~~the conductive structures.

40. (Currently amended) The method of claim 36, wherein ~~said~~ stereolithographically forming at least one stabilizer structure comprises configuring ~~said~~the at least one stabilizer structure to be positioned between a periphery of ~~said~~the surface of ~~said~~the semiconductor ~~device component die~~ and ~~said~~the conductive structures.

41. (Currently amended) A method of modifying a semiconductor die, comprising:  
providing at least one semiconductor die having an active surface with contact pads exposed thereon;  
applying a layer of a partially uncured photopolymer to ~~said~~the semiconductor die; and  
stereolithographically forming on ~~said~~the semiconductor, between one of ~~said~~the contact pads and a peripheral edge of ~~said~~the semiconductor, at least one stabilizer securable to ~~said~~the active surface so as to protrude from ~~said~~the active surface, ~~said~~the at least one stabilizer being a structure configured to at least partially stabilize an orientation of ~~said~~the at least one semiconductor die when disposed active surface-down over a higher-level substrate.

42. (Currently amended) The method of claim 41, wherein ~~said~~ forming ~~said~~the at least one stabilizer comprises forming a plurality of stabilizers.

43. (Currently amended) The method of claim 42, wherein ~~said~~ forming ~~said~~the plurality of stabilizers comprises forming at least one stabilizer of ~~said~~the plurality of stabilizers adjacent at least one corner of ~~said~~the active surface.

44. (Currently amended) The method of claim 42, wherein ~~said~~ forming ~~said~~the plurality of stabilizers comprises forming selected ones of ~~said~~the plurality of stabilizers to have a height that defines a substantially consistent die-to-substrate distance.

45. (Currently amended) The method of claim 41, wherein ~~said~~ providing comprises providing a semiconductor wafer including a plurality of semiconductor dice.

46. (Currently amended) The method of claim 41, further comprising introducing an encapsulant material between ~~said~~the at least one semiconductor die and ~~said~~the substrate.

47. (Currently amended) The method of claim 41, wherein ~~said~~ forming ~~said~~the at least one stabilizer comprises positioning ~~said~~the at least one stabilizer on ~~said~~the active surface so as to avoid contact with conductive traces on a carrier substrate.

48. (Currently amended) The method of claim 41, further comprising disposing at least one conductive structure on at least one bond pad of ~~said~~the at least one semiconductor die.

49. (Currently amended) The method of claim 48, wherein ~~said~~ disposing comprises forming a solder bump on ~~said~~the at least one bond pad.

50. (New) A method for electrically bonding a semiconductor device component having a surface and conductive structures protruding from the surface to a substrate having contacts positioned correspondingly to the conductive structures, the method comprising: stereolithographically forming at least one stabilizer structure on at least one of the surface and the substrate for disposal between the surface and the substrate to space the surface from

the substrate a distance greater than a minimum distance at least one of the conductive structures protrudes from the surface.;  
inverting and positioning the semiconductor die on the substrate to contact the conductive structures to corresponding contacts; and  
bonding the conductive structures to the corresponding contacts.

51. (New) The method of claim 50, wherein stereolithographically forming at least one stabilizer structure comprises forming at least one stabilizer structure comprising dielectric material.

52. (New) The method of claim 50, wherein bonding comprises employing the at least one stabilizer structure to lengthen at least one of the conductive structures.

53. (New) The method of claim 50, wherein stereolithographically forming at least one stabilizer structure comprises configuring the at least one stabilizer structure to be positioned between a periphery of the surface of the semiconductor device component and the conductive structures.